REMARKS

STATUS OF THE CLAIMS

[0001] Claims 1-20 are pending in the application. Claims 9-18 are rejected under 35 U.S.C. 112, first paragraph for lack of enablement. Claims 9-18 are rejected under 35 U.S.C. 112, second paragraph for indefiniteness. Claims 10-13 are rejected under 35 U.S.C. 112, second paragraph for lack of enablement and due to improper dependency. Claims 9-18 are rejected under 35 U.S.C. 101 as non-statutory subject matter. Claims 1-3, 6-15, and 18-20 are rejected user 35 U.S.C. 102(b) as being anticipated by US Patent 5,205,289 to Palmer. Claims 4, 5, 16, and 17 are rejected user 35 U.S.C. 103(a) as being anticipated by Palmer in view of Curtis.

AMENDMENTS TO THE CLAIMS

[0002] Claims 9-18 have been cancelled to direct this application specifically toward method claims. Claims 2, 6 and 20 have been cancelled because the subject matter of these claims is now incorporated in the amended claims.

[0003] In this Amendment, Applicant has cancelled Claims 2, 6, 9-18 and 20 from further consideration in this application. Applicant is <u>not</u> conceding that the subject matter encompassed by Claims 2, 6, 9-18 and 20, prior to this Amendment is not patentable over the art cited by the Examiner. Claims 2, 6, 9-18 and 20 were cancelled in this Amendment solely to facilitate expeditious prosecution of the Claims. Applicant respectfully reserves the right to pursue claims, including the subject matter encompassed by Claims 2, 6, 9-18 and 20 as presented prior to this Amendment and additional claims in one or more continuing applications. Applicant requests that these amendments be entered. Furthermore, the Specification has been amended to reflect the change to a Method set of claims.

[0004] Claims 1 was amended to clarify embodiments of the invention and this amendment will be discussed in relation to the corresponding rejection. Furthermore, Claims 5, 7 and 19 were also amended to be consistent with Claim 1 and to also clarify embodiments of the invention.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 102

[0005] Claims 1-3, 6-15 and 18-20 are rejected user 35 U.S.C. 102(b) as being anticipated by Palmer. "Anticipation under 35 U.S.C. §102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. …Whether such art is anticipating is a question of fact." *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 20, 57 USPQ2d 1057, 1061 (Fed. Cir. 2000). It is well settled that under 35 U.S.C. §102 "an invention is anticipated if . . . all the claim limitations [are] shown in a single art prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim." *Richardson v. Suzuki Motor Co., Ltd.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

[0006] Palmer appears to implement predictive prefetching of data based on analysis of data already processed. Id. at page 2, lines 30-37. Additionally, Palmer appears to implement a predictive cache. Id. at page 5, lines 41-45. Also, Palmer appears to implement pattern matching in order to predict future requirements for prefetching data. Id. at page 6, lines 57-61.

[0007] Applicant respectfully submits that Claim 1 clearly recites features not taught or suggested in Palmer. Claim 1 as amended states:

> 1. (Currently Amended) A method for processing a queue of messages, each message representing at least one request for an update to a database, the method comprising:
>   browsing ~~a~~ messages of a work queue for an update request, the update request queued at least a predetermined number of messages ahead of a currently executing database request, the work queue comprising a combination of update requests and database requests received for a database management system (DBMS);
>   identifying ~~extracting~~ the update request from a browsed message in the work queue~~an update request~~; ~~and~~
>   sending a pretend update request to the ~~a database management system (DBMS)~~ responsible for the database which is to be updated, the pretend update request derived from the update request;
>   translating the pretend update request into a prefetch request comprising an indication that directs the DBMS to not execute an ~~the~~ update operation, but instead to prefetch data that will be required when ~~a corresponding real~~ the update request is processed; and ~~requested.~~
>   wherein the prefetch request has a predetermined form comprising at least an identifier and the method further comprises,
>   retaining the predetermined form of the prefetch request;associating the identifier with the retained predetermined form in order that the predetermined form

can be identified and used in subsequent performance of the real update request, such that the retained predetermined form is used by the DBMS in place of parsing the real update request; and

returning the identifier in response to the pretend update request.

[0008] The amendments to Claim 1 are fully supported by the Specification in at least paragraphs [0047], [0052], [0057], [0062] in the Specification. These amendments clarify the Applicant's invention implements a read ahead thread to browse each item of work from a queue. Each work item comprising at least one database update request [0047]. The read ahead thread, consists of reading ahead of the currently executing work queue by a predetermined number of messages [0062]. The update request is derived from the update request [0052], and a pretend update request is issued to the database management system (DBMS), in certain embodiments. The derived updated request is sent by the read ahead thread to the DBMS and informs the DBMS that this is a pretend update request [0052]. The DBMS then reads the required data.

[0009] Palmer does not teach deriving a DBMS update request by browsing the work queue for an update request. Palmer does appear to teach predictive prefetching of data based on analysis of data already processed. Id. at page 2, lines 30-37. Palmer also appears to implement pattern matching in order to predict future requirements for prefetching data. Id. at page 6, lines 57-61. Applicants submit that these teachings are not browsing of a work queue for an update request as recited in amended Claim 1.

[0010] The amendments clarify that Claim 1 improves database update performance by implementing a method of using a read-ahead thread to: 1) Read database update requests from a work queue, and 2) Derive from the update request a pretend update request to send to the Database Management System (DBMS). Upon receiving the pretend update request the DBMS reads the requested data. The pretend update request is preserved in its predetermined form with an associated identifier.

[0011] Database performance is improved, because when the real request is received by the DBMS the requested data is already in memory, having been read into memory by the pretend update request. Additional database update performance is realized because of using the

identifier associated with the pretend update request. By using the associated identifier the DBMS does not need to re-parse the update request when the real request is received.

[0012] In contrast, Palmer teaches predictive caching, based on past data patterns. Palmer requires a predictor that performs a binary search of columns of the data patterns stored in the pattern memory.

[0013] Palmer fails to teach improving database update performance by implementing a read-ahead thread of the work queue, the work queue containing database update requests. Palmer does not teach deriving a pretend update request from the real update request, and reading ahead of the real update request as cited in the Applicants invention. Further, Palmer does not teach improving database performance by preserving the pretend update request in a predetermined form with an associated identifier. The associated identifier used to locate the pretend update request when the real update request is process. Using the associated identifier to locate the pretend update request removes the need to re-parse the update request, and saves time.

[0014] Consequently, Applicant respectfully requests that the rejection of amended Claim 1 under 35 U.S.C. § 102(b) be withdrawn. Furthermore, Claim 3, 7 and 8 depend on Claim 1. Consequently Applicant requests that the rejection of dependent Claims 3, 7, and 8 under 35 U.S.C. § 102 be withdrawn.

[0015] Applicant respectfully submits that Claim 19 clearly recites features not taught or suggested in Palmer, because Claim 19 includes the subject matter of Claim 1 that distinguishes Claim 1 from Palmer as explained above..

[0016] Consequently, Applicant respectfully requests that the rejection of Claim 19 under 35 U.S.C. § 102(b) be withdrawn.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 103

[0017] Claims 4, 5, 16, and 17 are rejected user 35 U.S.C. 103(a) as being anticipated by Palmer in view of Curtis. Applicants respectfully traverse these rejections. As Palmer is applied by Examiner to Claims 16 and 17 that have been cancelled as part of this response. Even though Applicants are not addressing Claims 16 and 17 due to the claim amendments, such lack of

discussion is not to be considered an admission. Applicants reserve the right to address Claims 16 and 17 in subsequent applications that may include apparatus and/or system claims.

[0018] The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. MPEP at § 2142. The prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP at § 2142. Furthermore, the factual inquiries for determining obviousness are summarized as follows: 1. Determine the scope and content of the prior art. 2. Determine the differences between the prior art and the claims at issue. 3. Resolve the level of ordinary skill in the pertinent art. 4. Consider objective evidence present in the application indicative of obviousness or nonobviousness. *Graham v. John Deere Co.*, 383 US 1, 148 USPQ 459 (1966).

[0019] Applicants assert that the Office Action fails to establish a *prima facie* case of obviousness, first because not all elements of the amended claims are taught or suggested in the art of record, and second, because the factual inquiry of Graham weighs in favor of nonobviousness.

SCOPE AND CONTENT OF THE ART

[0020] The first reference, Palmer, appears to describe a system for a Predictive Cache System that prefetches based on predictions, which are based on access patterns stored by context. An access pattern is generated from prior access of a data processing system processing in a like context. During a training sequence, an actual trace of memory accesses is processed to generate unit patterns which serve in making future predictions and to identify statistics such as pattern accuracy for each unit pattern.

[0021] The next reference, Curtis appears to be a method of pre-caching data using thread lists, and a multi-media editing system using such a pre-caching method.

DIFFERENCES BETWEEN THE PRIOR ART AND THE CLAIMS AT ISSUE

[0022] Palmer does not teach deriving a DBMS update request by browsing the work queue for an update request. Palmer does appear to teach predictive prefetching of data based on analysis of data already processed. Id. at page 2, lines 30-37. Palmer also appears to implement pattern matching in order to predict future requirements for prefetching data. Id. at page 6, lines 57-61. Applicants submit that these teachings are not browsing of a work queue for an update request as recited in amended Claim 1.

[0023] In addition, Applicants respectfully submit that Claim 4 clearly recites features not taught or suggested in Palmer combined with Curtis. Claim 4 states:

> (Original) The method of claim 3, wherein initiating a real update request is performed by a master thread and browsing a message is performed by one or more read ahead threads.

[0024] Palmer fails to teach the recited limitation in Claim 4 of browsing a message using a master thread for the purpose of deriving a pretend update request. The next reference, Curtis appears to teach a method of for-knowledge of the data location on a rotating storage device. "Sequential threads are useful in applications where a path through the data defined by the thread is set in advance. Id. page 6, lines 43-44. Predictive threads are used to specify a random accessed list of samples, sorted in the order of probability of access. Predictive threads allow access to any sample in a list where the data is defined in its native form (for example, a video frame or an audio chunk). Id. page 6, lines 44-49. The predictive threads in Curtis rely on the predefined format of the storage device. Consequently, the predictive threads can predict that when the next set of retrieved data is positioned under the read head.

[0025] Applicants submit that read ahead threads and a master thread as recited in Claim 4, are fundamentally different from the predictive threads taught by Palmer. In Claim 4, the master thread browses database requests of a work queue for database updates. There is no prediction of where the next data element is associated with the master thread of Claim 4. The next data element is simply the next element in the queue. The read ahead thread reads a predetermined number of database requests ahead of the master thread in order to identify update requests before they reach the master thread. Applicants submit that Curtis fails to teach or disclose either a master thread or a read ahead thread as recited in Claim 4.

[0026] The Applicants respectfully assert that Palmer combined with Curtis, fails to teach or disclose each element of the claimed invention as required under 35 U.S.C. § 103(a). Specifically, Applicants respectfully submit that Claim 4 clearly recites features not taught or suggested in Palmer combined with Curtis. Furthermore, Claim 5 depends on Claim 4. Consequently Applicant requests that the rejection of dependent Claim 5, under 35 U.S.C. § 103 be withdrawn. Applicants submit that the features of their invention represent a nonobvious

improvement over the art. Therefore, Applicants submit that the evidence weighs in favor of nonobviousness.

CONCLUSION

[0027] In view of the foregoing, Applicants submit that the application is in condition for immediate allowance. In the event any questions or issues remain that can be resolved with a supplemental phone call, the Examiner is respectfully requested to initiate a telephone conference with the undersigned.

RESPONSE TO SPECIFICATION

The abstract of the disclosure is objected to because a copy of the WIPO publication has been submitted. Applicants have reviewed the requirements set forth in MPEP § 608.01(b) and 37 CFR 1.72(b). Applicants note that the application as filed included the abstract on a separate sheet, on page 23. Applicants note that where the WIPO publication included an abstract and this is an application under 371, the abstract should be acceptable, See MPEP § 608.01(b). Nonetheless, to facilitate prosecution an abstract on a separate sheet of paper is submitted.

DRAWINGS

Figures will be correctly labeled: FIG.1, FIG. 2, FIG. 3, Figure 1 will be labeled "Prior Art". Each sheet will be relabeled as "Replacement Sheet" in the top margin.

CONCLUSION

Applicants submit that the amendments to the claims overcome the Examiner's rejections and put all the claims in condition for allowance. In the event the Examiner finds any remaining impediment to the prompt allowance of any of these claims, which could be clarified in a telephone conference, the Examiner is respectfully urged to initiate the same with the undersigned.

Respectfully submitted,

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